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(71)Applicant : **NIKON CORP**
(72)Inventor : **TANAKA MASAHIDE**

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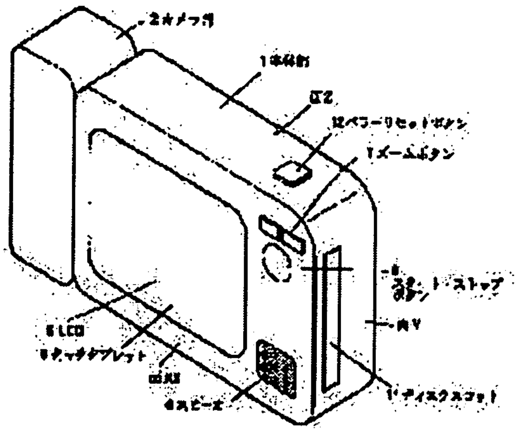
(54) MOVING IMAGE RECORDING CAMERA AND MOVING IMAGE REPRODUCING DEVICE



(57)Abstract:

PROBLEM TO BE SOLVED: To improve the operability by providing common buttons for accepting the user's operations so as to simplify the operations.

SOLUTION: A start/stop button 8 accepts an instruction of start/stop of prescribed processing. A touch tablet that outputs positional data corresponding to a pointed-out position by a touch operation is placed on a surface of an LCD 5. A power reset button 12 accepts a reset instruction of the prescribed processing or power-on of a main power supply.

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CLAIMS

[Claim(s)]

[Claim 1] The mode means for switching which switches the mode of either image transcription mode or a playback mode, A photography means to photo a dynamic image, and a storage means to memorize dynamic-image data in said image transcription mode, A playback means to reproduce said dynamic-image data which said storage means memorized in said playback mode, It has an electric power supply means to supply power to each part, and a reception means to receive actuation of the user who directs initiation of an electric power supply for said electric power supply means. Said mode means for switching The dynamic-image record camera characterized by switching to said playback mode when said electric power supply means starts an electric power supply corresponding to the actuation of a user which said reception means received.

[Claim 2] Corresponding to the actuation of a user which was equipped with the playback-mode means for switching which switches the playback mode of either the dynamic-image playback mode which reproduces a dynamic image, or the static-image playback mode which reproduces a static image, and a reception means to receive actuation of the user who directs a halt of dynamic-image playback in said dynamic-image playback mode, and said reception means received, said playback-mode means for switching is a dynamic-image regenerative apparatus characterized by to switch to said static-image playback mode from said dynamic-image playback mode.

[Claim 3] The dynamic-image regenerative apparatus characterized by to have the playback-mode means for switching which switches the playback mode of either the dynamic-image playback mode which reproduces a dynamic image, or the static-image playback mode which reproduces a static image, a reception means receive actuation of the user who directs a rapid traverse of a dynamic image in said dynamic-image playback mode, and the playback means which carries out coma delivery playback of said static image in said static-image playback mode corresponding to the actuation of a user which said reception means received.

[Claim 4] The dynamic-image regenerative apparatus characterized by to have the playback-mode means for switching which switches the playback mode of either the dynamic-image playback mode which reproduces a dynamic image, or the static-image playback mode which reproduces a static image, a reception means receive actuation of the user of a dynamic image who already directs return in said dynamic-image playback mode, and the playback means which carry out coma return playback of said static image corresponding to the actuation of a user which said reception means received in said static-image playback mode.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] Especially this invention relates to the dynamic-image record camera and dynamic-image regenerative apparatus which recorded the dynamic image on the record medium in which random access is possible about a dynamic-image record camera and a dynamic-image regenerative apparatus.

[0002]

[Description of the Prior Art] Now, the video camera which photos and records a dynamic image has spread widely. Magnetic tapes, such as 8mm videocassette, are adopted as this video camera as a record medium of the photoed image data.

[0003]

[Problem(s) to be Solved by the Invention] By the way, since the separate carbon button was receiving actuation of users, such as turning on and off of a power source, an image transcription, playback, or a rapid traverse, the conventional video camera had the technical problem to which actuation becomes complicated.

[0004] This invention is made in view of such a situation, and enables it to simplify actuation by receiving actuation of a user with a common carbon button.

[0005]

[Means for Solving the Problem] The mode means for switching to which a dynamic-image record camera according to claim 1 switches the mode of either image transcription mode or a playback mode, A photography means to photo a dynamic image, and a storage means to memorize dynamic-image data in image transcription mode, A playback means to reproduce the dynamic-image data which the storage means memorized in the playback mode, It has an electric power supply means to supply power to each part, and a reception means to receive actuation of the user who directs initiation of an electric power supply for an electric power supply means. A mode means for switching When an electric power supply means starts an electric power supply corresponding to the actuation of a user which the reception means received, it is characterized by switching to a playback mode.

[0006] A dynamic-image regenerative apparatus according to claim 2 is equipped with the playback-mode means for switching which switches the playback mode of either the dynamic-image playback mode which reproduces a dynamic image, or the static-image playback mode which reproduces a static image, and a reception means to receive actuation of the user who directs a halt of dynamic-image playback in a dynamic-image playback mode, and a playback-mode means for switching is characterized by switching to a static-image playback mode from a dynamic-image playback mode corresponding to the actuation of a user which the reception means received.

[0007] In the playback-mode means for switching to which a dynamic-image regenerative apparatus according to claim 3 switches the playback mode of either the dynamic-image playback mode which reproduces a dynamic image, or the static-image playback mode which reproduces a static image, and a dynamic-image playback mode The dynamic-image regenerative apparatus characterized by having a reception means to receive actuation of the user who directs a rapid traverse of a dynamic image, and the playback means which carries out coma delivery playback of the static image in a static-image playback mode corresponding to the actuation of a user which the reception means received.

[0008] In the playback-mode means for switching to which a dynamic-image regenerative apparatus according to claim 4 switches the playback mode of either the dynamic-image playback mode which reproduces a dynamic image, or the static-image playback mode which reproduces a static image, and a dynamic-image playback mode It is characterized by having a reception means to receive actuation of the user of a dynamic image who already directs return, and the playback means which carries out coma return playback of the static image corresponding to the actuation of a user which the reception means received in the static-image playback mode.

[0009] In a dynamic-image record camera according to claim 1 A mode means for switching switches the mode of either image transcription mode or a playback mode. A photography means photos a dynamic image and a storage means memorizes dynamic-image data in image transcription mode. A playback means reproduces the dynamic-image data which the storage means memorized in the playback mode, an electric power supply means supplies power to each part, and a reception means receives actuation of the user who directs initiation of an electric power supply for an electric power supply means.

[0010] In a dynamic-image regenerative apparatus according to claim 2, a playback-mode means for switching switches the playback mode of either the dynamic-image playback mode which reproduces a dynamic image, or the static-image playback mode which reproduces a static image, and a reception means receives actuation of the user who directs a halt of dynamic-image playback in a dynamic-image playback mode.

[0011] In a dynamic-image regenerative apparatus according to claim 3, a playback-mode means for switching switches the playback mode of either the dynamic-image playback mode which reproduces a dynamic image, or the static-image playback mode which reproduces a static image, a reception means receives actuation of the user who directs a rapid traverse of a dynamic image in a dynamic-image playback mode, and a playback means carries out coma delivery playback of the static image in a static-image playback mode corresponding to the actuation of a user which the reception means received.

[0012] In a dynamic-image regenerative apparatus according to claim 4, a playback-mode means for switching switches the playback mode of either the dynamic-image playback mode which reproduces a dynamic image, or the static-image playback mode which reproduces a static image, a reception means receives actuation of the user of a dynamic image who already directs return in a dynamic-image playback mode, and a playback means carries out coma return playback of the static image in a static-image playback mode corresponding to the actuation of a user which the reception means received.

[0013]

[Embodiment of the Invention] Although the gestalt of operation of this invention is explained below, it is as follows, when the gestalt (however, an example) of operation [/ in the parenthesis of Ushiro of each means] is added and the description of this invention is described, in order to clarify correspondence relation between each means of invention given in a claim, and the gestalt of the following operations.

[0014] Namely, a dynamic-image record camera according to claim 1 The mode means for switching which switches the mode of either image transcription mode or a playback mode (for example, the image transcription carbon button B of drawing 5), A photography means to photo a dynamic image (for example, camera section 2 of drawing 1 R> 1), A storage means to memorize dynamic-image data in image transcription mode (for example, magneto-optic disk 10 of drawing 1), A playback means to reproduce the dynamic-image data which the storage means memorized in the playback mode (for example, step S45 of drawing 12), It is characterized by having an electric power supply means (for example, dc-battery 38 of drawing 3) to supply power to each part, and a reception means (for example, power reset button 12 of drawing 1) to receive actuation of the user who directs initiation of an electric power supply for an electric power supply means.

[0015] Moreover, a dynamic-image regenerative apparatus according to claim 2 is characterized by having the playback-mode means for switching (for example, step S56 of drawing 12) which switches the playback mode of either the dynamic-image playback mode which reproduces a dynamic image, or the static-image playback mode which reproduces a static image, and a reception means (for example, start stop button 8 of drawing 2) to receive actuation of the user who directs a halt of dynamic-image playback in a dynamic-image playback mode.

[0016] Furthermore, a dynamic-image regenerative apparatus according to claim 3 In the playback-mode means for switching (for example, step S56 of drawing 12) which switches the playback mode of either the dynamic-image playback mode which reproduces a dynamic image, or the static-image playback mode which reproduces a static image, and a dynamic-image playback mode In a reception means (for example, touch tablet 9 of drawing 2) to receive actuation of the user who directs a rapid traverse of a dynamic image, and a static-image playback mode The dynamic-image regenerative apparatus characterized by having the playback means (for example, step S58 of drawing 12) which carries out coma delivery playback of the static image corresponding to the actuation of a user which the reception means received.

[0017] Moreover, the dynamic-image playback mode to which a dynamic-image regenerative apparatus according to claim 4 reproduces a dynamic image, Or it sets to the playback-mode means for switching (for example, step S56 of drawing 12) which switches one playback mode of the static-image playback modes which reproduce a static image, and a dynamic-image playback mode. In a reception means (for example, touch tablet 9 of drawing 2) to receive actuation of the user of a dynamic image who already directs return, and a static-image playback mode It is characterized by having the playback means (for example, step S58 of drawing 12) which carries out coma return playback of the static image corresponding to the actuation of a user which the reception means received.

[0018] However, of course, this publication does not mean limiting to what indicated each means.

[0019] Drawing 1 and drawing 2 are the perspective views showing the configuration of the appearance of the video camera which applied this invention. This video camera consists of the body section 1 and the camera section 2. In this video camera, when photoing a photographic subject, the field turned to a photographic subject is made into a field X1, and the field turned to a user side is made into the field X2. The image pick-up lens 3 which captures the optical image of a photographic subject, and the microphone 4 which collects voice are formed in the field X1 of the camera section 2. In addition, the camera section 2 is connected free [rotation] to the body section 1. Therefore, a user can turn a taking lens 3 in the direction of arbitration, observing the image displayed on a liquid crystal display 5 (it is hereafter described as LCD5).

[0020] The start stop button 8 operated in case initiation or a halt of the zoom carbon button 7 operated on the other hand in case the direction of LCD5 which displays the image inputted from the image pick-up lens 3 or the image memorized by the magneto-optic disk 10, the loudspeaker 6 which outputs the voice currently recorded, and a zoom is switched to the field X2 of the body section 1, and predetermined of processing is directed is formed.

[0021] The touch tablet 9 which outputs the location data corresponding to the directed location by contact actuation on the front face of LCD5 is arranged.

[0022] This touch tablet 9 is constituted by transparent ingredients, such as glass and resin, and a user can observe the image displayed on LCD5 currently formed inside the touch tablet 9 through a touch tablet 9.

[0023] The disk slot 11 in which the magneto-optic disk 10 which is the record medium which records the photoed image data, and in which random access is possible is inserted is formed in the side face Y of this video camera. Furthermore, the power reset button 12 operated in case ON of a main power supply or reset of predetermined processing is directed is formed in the top face Z of this video camera.

[0024] Drawing 3 is the block diagram showing the electric example of a configuration inside the video camera of drawing 1 . The lens mechanical component 20 is controlled by the signal-processing section 23, drives the image pick-up lens 3, and is made as [amend / a focus or a zoom]. An image sensor 21 carries out photo electric conversion of the optical image of the photographic subject by which image formation is carried out through the image pick-up lens 3 to a picture signal (electrical signal), and outputs it to the A/D-conversion section 22. The A/D-conversion section 22 is made as [change / from an analog signal / into a digital signal / the picture signal supplied from an image sensor 21]. To the picture signal supplied from the A/D-conversion section 22, the signal-processing section 23 performs processing of white balance amendment, a gamma correction, etc., and is made as [output / to a frame memory 24] while performing exposure control (for example, aperture or an automatic gain control) of an image sensor 21.

[0025] A frame memory 24 stores the picture signal supplied from the signal-processing section 23 or the data compression expanding section 25 for every frame of a predetermined number. The data compression expanding section 25 elongates the picture signal read from buffer memory 26, and is made as [output / to a frame memory 24] while compressing the picture signal read from the frame memory 24 using an MPEG (Moving Picture Experts Group) method and outputting this to buffer memory 26.

[0026] The data-access section 27 offers the head for record playback, drives the magneto-optic disk 10 with which it was equipped, reads the picture signal or sound signal currently recorded on the magneto-optic disk 10 while recording the picture signal or sound signal read from buffer memory 26 on a magneto-optic disk 10, and is made as [output / to buffer memory 26]. The wearing judging section 28 judges whether it is equipped with the magneto-optic disk 10, and outputs a judgment result to a control section 34.

[0027] The voice-input/output section 29 outputs the sound signal supplied from the D/A transducer 30 to a loudspeaker 6 while outputting the voice inputted from a microphone 4 to the A/D-conversion section 31. The D/A transducer 30 changes into an analog signal the sound signal supplied from the sound signal processing section 32 from a digital signal, and outputs it to the voice-input/output section 29. The A/D-conversion section 31 changes into a digital signal the sound signal supplied from the voice-input/output section 29 from an analog signal, and is made as [output / to the sound signal processing section 32]. The sound signal processing section 32 elongates the sound signal read from buffer memory 26, and is made as [output / to the D/A transducer 30] while compressing the sound signal supplied from the A/D-conversion section 31 and outputting to buffer memory 26.

[0028] The display image creation section 33 creates the image corresponding to the picture signal read from the frame memory 24, and carries out the monitor display of it to LCD5. The touch tablet input section 35 is made as [output / to a control section 34 / the actuation signal (position signal) from a touch tablet 9]. The operating member input section 36 receives the actuation signal from the operating member of the zoom carbon button 7, the start stop button 8, or power reset button 12 grade, and is made as [output / to a control section 34]. The control section 34 is made as [control / the whole video camera / based on the computer program memorized by the Records Department 37]. moreover, the timer which a control section 34 does not illustrate -- building -- **** -- always -- a time check -- it is operating. The storage section 37 is constituted by ROM, RAM, or EEPROM (neither is illustrated), a control section 34 performs various kinds of processings in this storage section 37 upwards, and required data, a required program, etc. are suitably recorded on it. The dc-battery 38 is made as [supply / to each part of a video camera / power].

[0029] In addition, the data compression expanding section 25, the display-image creation section 33, the touch panel input section 35, and a control section 34 are realized by the internal function of a microprocessor 40.

[0030] Next, starting processing of this video camera is explained with reference to the flow chart of drawing 4 . In step S1, when it judges whether the power reset button 12 was pushed based on the signal inputted from the operating member input section 36 and is judged with the power reset button 12 not being pushed, a control section 34 stands by until it is judged with the power reset button 12 having been pushed. That is, in this video camera, in order to detect the actuation to the power reset button 12 by the user, the standby power source is always set to ON. When judged with the power reset button 12 having been pushed, it progresses to step S2.

[0031] In step S2, a control section 34 sets the drive power source of the whole video camera to ON.

[0032] In step S3, a control section 34 initializes a video camera by reading and performing the predetermined computer program memorized by ROM of the storage section 37 etc.

[0033] In step S4, by control of a control section 34, the display image creation section 33 creates the image information of an initial screen, and outputs it to LCD5. LCD5 displays an initial screen based on the inputted image information. Moreover, a control section 34 starts the timer built in in order to measure a non-operate time.

[0034] The example of a display of the initial image displayed on LCD5 is shown in drawing 5 R> 5. It is displayed on the order by which the thumbnail A1 which reduced the image of the head of the image (a series of scenes) of plurality (in the case of this example eight pieces) currently recorded on the magneto-optic disk 10 in the center of an initial screen thru/or A8 were photoed. The elimination edit carbon button C operated in case the image transcription carbon button B operated in case image transcription processing is directed (touch), and elimination edit processing are directed is displayed on screen right-hand side. Moreover, the off-carbon button D operated in case the drive power source of the whole video camera is made off (touch) is displayed on a screen lower left side.

[0035] It returns to drawing 4 . In step S5, a control section 34 progresses to step S6, when it judges whether processing of arbitration was directed from the user and judged with processing of arbitration having been directed.

[0036] One when the double touch of the thumbnail A displayed on LCD5 by the user is carried out at this time and the start stop button 8 is pushed, or when the start stop button 8 is pushed after being touched in Thumbnail A of cases is judged as regeneration having been directed. Moreover, when touched in the image transcription carbon button B displayed on LCD5, it is judged with image transcription processing having been directed. Furthermore, when touched in the elimination edit carbon button C displayed on LCD5, it is judged with elimination edit processing having been directed.

[0037] In step S6, processing of the regeneration specified at step S5, image transcription processing or elimination edit processing either is performed.

[0038] Drawing 6 is a flow chart explaining image transcription processing. In step S11, a video camera is set as an image transcription standby condition. That is, a taking lens 3 carries out image formation of the optical image of a photographic subject to an image sensor 21. An image sensor 21 carries out photo electric conversion of the optical image of a photographic subject to a picture signal (electrical signal), and outputs it to the A/D-conversion section 22. The A/D-conversion section 22 changes into a digital signal the picture signal supplied from an image sensor 21 from an analog signal. The signal-processing section 23 performs processing of white balance amendment etc. to the picture signal supplied, and outputs it to a frame memory 24. A frame memory 24 stores the picture signal supplied from the signal-processing section 2325 for every frame of a predetermined number. The display image creation section 33 creates the image corresponding to the picture signal read from the frame memory 24, and carries out the monitor display of it to LCD5.

[0039] In step S12, time amount display processing which can be recorded on videotape is performed, and as shown in drawing 7 , the time amount which can be recorded on videotape is displayed on the right-hand side of LCD5. In addition, about the detail of this time amount display processing that can be recorded on videotape, it mentions later.

[0040] In step S13, a control section 34 judges [current and] whether it is under image transcription. When judged with it not being [be / it] under image transcription, it progresses to step S14.

[0041] In step S14, a control section 34 judges whether the start stop button 8 was pushed. When judged with the start stop button 8 having been pushed, it progresses to step S15.

[0042] In step S15, the data compression expanding section 25 reads a picture signal from a frame memory 24, compresses it using an MPEG method, and is outputted to buffer memory 26 as a new file. At this time, a control section 34 resets the timer to build in.

[0043] Here, the file in which the compressed image information is stored is explained with reference to drawing 8 and drawing 9 . In this video camera, the image information which photoed the scene continued in time is divided and recorded on every predetermined image transcription time amount and the file for for [every] 1 minute. Therefore, when the scene 1 for 2 minutes and 30 seconds is photoed, the image information is divided and stored in three files floor line 1 of the files floor line1 and floor line2 in which the image information for 1 minute is stored, and the file floor line 3 in which the image information for 30 seconds is stored thru/or 3 as shown in drawing 8 (A).

[0044] The file consists of the header units and data divisions which consist of information ("a pre- file" and the "next file") which shows the sequence when reproducing, as shown in drawing 9 . For example, in the example of drawing 8 (A), floor line2 and each are recorded on "the pre-file" of a file floor line 2 by floor line1 and the "next file" to predetermined timing. Even if a file floor line 1 thru/or 3 are dispersed for it and recorded on a magneto-optic disk 10 by this, it becomes possible to reproduce continuously. The number of the frames which constitute a file is recorded on "the total frame number."

[0045] The information on arbitration can be inputted into the "title" of a header unit, a "photography person", and the "playback points 1 and 2" by the predetermined approach (for example, a file is read into a personal computer). The thumbnail image of data division is the information on an image that the static image (in the case of this example image of the head of a file floor line 1) of the head of a series of scenes was reduced. Therefore, a thumbnail image does not exist in the data division of files floor line2 and floor line3. A body image and voice are the information itself compressed by the MPEG method. SOF (Start of File) and EOF (End of File) are information which shows initiation of a file, and termination, respectively.

[0046] It returns to drawing 6 . In step S16, a control section 34 judges whether the start stop button 8 was pushed. When judged with the start stop button 8 not being pushed, it progresses to step S17.

[0047] In step S17, a control section 34 judges whether the timer passed 1 minute. When a timer is judged as 1 minute having passed, it progresses to step S18.

[0048] In step S18, the data compression expanding section 25 records EOF on the file (the old file) under present image transcription (under information writing), and creates a new file (new file).

[0049] In step S19, a new file is entered in the "next file" of the header unit of the old file, and the old file is entered in "the pre- file" of the header unit of a new file.

[0050] In step S20, a control section 34 resets a timer and starts ****** again.

[0051] In step S17, when a timer is judged as 1 minute having not passed, it progresses to step S21.

[0052] In step S21, a control section 34 measures the amount of information of the image recorded on videotape, and judges whether the amount is more than a predetermined amount. When judged with their being return and below a predetermined amount at step S12 when judged with it being more than a predetermined amount, it returns to step S16.

[0053] In step S16, when judged with the start stop button 8 having been pushed, it progresses to step S22.

[0054] In step S22, the data compression expanding section 25 suspends compression of image information. A video camera is set as an image transcription standby condition like step S11.

[0055] In step S23, EOF is recorded on a file (the present file) while storing the present information.

[0056] In step S24, termination is recorded on the "next file" of the header unit of the present file.

[0057] In step S25, a thumbnail image is generated from the information currently recorded on the file of the head of a series of scenes, and it records on a top file.

[0058] In step S26, a control section 34 judges whether the power reset button 12 was pushed. When judged with the power reset button 12 having been pushed, it progresses to step S27.

[0059] In step S27, an image transcription standby condition is canceled and an initial screen (drawing 8 (A)) is displayed on LCD5.

[0060] In step S26, when judged with the power reset button 12 not being pushed, it returns to step S12.

[0061] In step S13, when judged with it current being under image transcription, steps S14 and S15 are skipped.

[0062] In step S14, when judged with the start stop button 8 not being pushed, it returns to step S12.

[0063] in addition, the processing mentioned above -- setting -- time amount (for 1 minute) progress predetermined in image transcription time amount -- whenever predetermined memory capacity (for example, 5 megabytes) is consumed, you may make it update a file, although it was made to update to a new file whenever it carried out Moreover, whenever GOP (GroupOf Picture) becomes a predetermined number (for example, 100GOP), you may make it update a file.

[0064] The time amount display process which can be recorded on videotape is explained with reference to the flow chart of drawing 10 . A control section 34 controls the data-access section 27, and calculates the remaining capacity of a magneto-optic disk 10, and the storage section 37 is made to memorize it as a variable in step S31. Remaining capacity totals the non-input capacitance as which information is not filled in, and the capacity of the file belonging to an elimination directory (after-mentioned), subtracts a predetermined activity capacity used for the copy of a file etc., and is calculated.

[0065] A control section 34 makes the storage section 37 memorize the remaining capacity time function f in step S32. In addition, a remaining-capacity time function is a function which combined the function f1 whose remaining capacity is a variable, the function f2 whose track record of the actually used storage capacity is a variable, the function f3 whose description of a photographic subject is a variable, the function f4 whose condition (a focal distance value, a focus distance value, and diaphragm value) of a taking lens 3 is a variable, the function f5 whose operating property of a user is a variable, and the function f6 whose discrete situation of remaining capacity is a variable by fuzzy theory.

[0066] In step S33, a control section 34 reads a remaining capacity time function from the storage section 37 with the remaining capacity which is a variable, and calculates remaining capacity time amount. Moreover, a control section 34 detects the remaining electricity mind capacity of a dc-battery 38, and converts it into time amount.

[0067] In step S34, a control section 34 controls LCD5, and as shown in drawing 7 (image transcription standby condition), it displays remaining capacity time amount and remaining electricity mind capacity time amount (dc-battery remaining time). In addition, LCD5 is made to display it as "under an image transcription" under the dc-battery remaining time during an image transcription, as shown in drawing 1111 .

[0068] In step S35, it judges whether a control section 34 has remaining capacity time amount longer than the dc-battery remaining time. When judged with remaining capacity time amount being longer than the dc-battery remaining time, it progresses to step S36.

[0069] In step S36, a control section 34 controls LCD5 and indicates the dc-battery remaining time by flashing. Thus, a user does not judge accidentally the remaining time which can actually be photoed by indicating by flashing and emphasizing the dc-battery remaining time whose remaining time is lost previously.

[0070] In step S35, when it judges that remaining capacity time amount is not longer than the dc-battery remaining time, step S36 is skipped.

[0071] In addition, only the remaining capacity of a magneto-optic disk 10 is expressed as step S34, and the dc-battery remaining time may be made to be expressed as step S36. Moreover, you may make it switch being step S36, for example, decreasing the screen product of LCD5 etc. to the power-saving mode in which the consumption of power is decreased.

[0072] Drawing 12 is a flow chart explaining regeneration of a video camera. In step S41, a control section 34 judges the approach by which regeneration was directed at step S5 of drawing 4 .

[0073] That is, the playback mode 1 by which only a series of scenes corresponding to the thumbnail A by which the double touch of the thumbnail A displayed on LCD5 was carried out, and the double touch was carried out by progressing to step S42 when judged with regeneration having been started are reproduced is set up.

[0074] Moreover, when judged with the start stop button 8 having been pushed and regeneration having been started, it progresses to step S43 and the playback mode 2 by which all the images (for example, a series of scenes corresponding to a thumbnail A1 thru/or A8, and each the case of the example shown in drawing 5) currently recorded on the magneto-optic disk 10 are reproduced is set up.

[0075] Moreover, when it is touched in thumbnail A4 in the example shown in all the images after the thumbnail A touched by progressing to step S44, for example, drawing 5 , when judged with the start stop button 8 having been pushed and regeneration having been started after being touched in Thumbnail A, the playback mode 3 by which a series of scenes corresponding to thumbnail A4 thru/or A8, and each are reproduced is set up.

[0076] Playback of an image is started in step S45. That is, by control of a control section 34, the data-access section 27 reads the image information specified by step S42 thru/or either of S44 from a magneto-optic disk 10, and it outputs to buffer memory 26. The data compression expanding section 25 reads image information from buffer memory 26, develops, and is supplied to a frame memory 24. The display image creation section 33 reads image information from a frame memory 24, changes it into the display information on LCD5, and is supplied to LCD5. Fast forward button E operated in case a rapid traverse is directed, and in case return is already directed, LCD5 is operated, carries out a quick return, and displays a carbon button F on screen right-hand side, while it displays the supplied display information on middle of the screen, as shown in drawing 13 .

[0077] In step S46, a control section 34 judges whether the start stop button 8 was pushed. When judged with the start stop button 8 not being pushed, it progresses to step S47.

[0078] In step S47, a control section 34 judges [fast forward button E currently displayed on LCD5, or] whether the return carbon button F was already operated (touch). Fast forward button E or when it already judges that it is not touched by the return carbon button F, it progresses to step S48.

[0079] In step S48, a control section 34 judges whether the power reset button 12 was pushed. When judged with the power reset button 12 not being pushed, it progresses to step S49.

[0080] In step S49, a control section 34 judges whether it is the playback termination location where the image under playback is defined by the playback mode. When judged with it being a playback termination location, it progresses to step S50.

[0081] In step S50, the playback post process (it mentions later for details) which manages the reproduced file is performed.

[0082] In step S48, when judged with the power reset button 12 having been pushed, step S49 is skipped.

[0083] In step S49, when judged with it not being a playback termination location, it returns to step S46.

[0084] In step S47, fast forward button E or when it already judges that it was touched by the return carbon button F, it progresses to step S51.

[0085] In step S51, in order to prevent a user's failure, a control section 34 stands by predetermined time amount (for example, for 0.2 seconds), and processing, fast forward button E or after already being touched in the return carbon button F.

[0086] In step S52, a control section 34 already judges whether the return carbon button F is in fast forward button E or the condition of having been touched.

[0087] step S53 -- setting -- control of a control section 34 -- LCD5 -- a rapid traverse -- or a return image is already displayed.

[0088] In step S54, a control section 34 already judges [fast forward button E or] whether it was touched in the return carbon button F. Fast forward button E or when it already judges that it was touched by the return carbon button F, it progresses to step S55. moreover, fast forward button E or when it already judges that it is not touched by the return carbon button F, it stands by until it is touched in a carbon button E or a carbon button F (a rapid traverse -- or return is already continued).

[0089] step S55 -- setting -- a control section 34 -- a rapid traverse -- or return is already terminated and the usual playback is started.

[0090] In step S46, when judged with the start stop button 8 having been pushed, it progresses to step S56.

[0091] In step S56, the coma return carbon button H operated in case coma stepper-button G operated in case coma delivery is directed, and coma return are directed while a static image is displayed as control of a control section 34 shows in the center of LCD5 at drawing 14 is displayed on screen right-hand side.

[0092] In step S57, a control section 34 judges whether it was touched in coma stepper-button G currently displayed on LCD5, or the coma return carbon button H. When it judges that it was touched by coma stepper-button G or the coma return carbon button H, it progresses to step S58.

[0093] In step S58, coma delivery or a coma return image is displayed on LCD5 by control of a control section 34.

[0094] In step S59, a control section 34 judges whether the start stop button 8 was pushed. When judged with the start stop button 8 having been pushed, it progresses to step S60.

[0095] In step S60, the dynamic image reproduced usual is displayed on LCD5 by control of a control section 34.

[0096] In step S57, when it judges that it is not touched by coma stepper-button G or the coma return carbon button H, step S58 is skipped.

[0097] In step S59, when judged with the start stop button 8 not being pushed, it returns to step S57.

[0098] The playback post process of step S50 is explained with reference to the flow chart of drawing 15 . In this playback post process, the file in which the image information reproduced before [step S50] is stored is classified into either protection, elimination, a hold or undisposed inside according to directions of a user. Protection is a file in which the possibility of read-out and elimination are impossible, and the file saved is classified into this. Elimination is the file which can be overwritten and the file eliminated is classified into this. The file suspended [classifying a hold into protection or elimination and] is classified. Un-disposing is a file classified into neither protection nor elimination nor a hold, and the file which has a playback post process performed for the first time is classified into this.

[0099] In step S61, a control section 34 judges whether the file of undisposed or a hold exists in the file of the image reproduced before [step S50]. When judged with the file of disposal or a hold existing, it progresses to step S62.

[0100] In step S62, a control section 34 judges whether the completion file of disposal (protection, elimination, or hold file) is intermingled in the file of the image reproduced before [step S50]. When judged with the completion file of disposal being intermingled, it progresses to step S63.

[0101] In step S63, a control section 34 controls LCD5, and as shown in drawing 16 , it displays the package protection carbon button I, the package elimination carbon button J, confirmation-button K, and the hold carbon button L. The package protection carbon button I is operated in case the hold file of the reproduced files and an undisposed file are collectively classified into protection. The package elimination carbon button J is operated in case the hold file of the reproduced files and an undisposed file are collectively classified into elimination. Confirmation-button K is operated in case the image reproduced before [step S50] is reproduced again. In case the hold carbon button L classifies the reproduced undisposed file into a hold, it is operated.

[0102] In step S64, a control section 34 judges whether the hold carbon button L was pushed. When judged with the hold carbon button L not being pushed, it progresses to step S65.

[0103] In step S65, a control section 34 judges whether confirmation-button K was pushed. When judged with confirmation-button K not being pushed, it progresses to step S65.

[0104] In step S66, a control section 34 sets all the hold files and undisposed files as a processing object.

[0105] In step S67, a control section 34 judges whether which carbon button of protection or elimination was pushed. When judged with the package protection carbon button I or the protection carbon button M (after-mentioned) having been pushed, it progresses to step S68.

[0106] In step S68, a control section 34 classifies the file for disposal into protection (the attribute of a file is set to Read Only).

[0107] In step S69, a control section 34 judges whether an undisposed file exists in the file in which the image is stored, although reproduced before step S50. When judged with an undisposed file not existing, a return is carried out after displaying an initial screen (drawing 8 (A)) on LCD5.

[0108] In step S65, when judged with confirmation-button K having been pushed, it progresses to step S70.

[0109] In step S70, control of a control section 34 is reproduced as a processing object, and the undisposed file of the images reproduced before [step S50] is displayed on LCD5.

[0110] In step S71, by control of a control section 34, as shown in drawing 17 , LCD5 displays the protection carbon button M and the elimination carbon button N. In case the protection carbon button M classifies the file of a processing object into protection, it is operated. In case the elimination carbon button N classifies the file of a processing object into elimination, it is operated.

[0111] In step S67, when judged with the package elimination carbon button J or the elimination carbon button N having been pushed, it progresses to step S72.

[0112] In step S72, a control section 34 judges whether it is the middle of the image reproduced at step S70 being a file. When judged with it being the middle of the image reproduced at step S70 being a file, it progresses to step S73.

[0113] In step S73, processing (after-mentioned) is performed the middle.

[0114] The file for disposal is classified into elimination in step S74 (it moves to an elimination directory).

[0115] In step S61, when judged with a disposal file or a hold file not existing, a return is carried out.

[0116] In step S62, when judged with the completion file of disposal not being intermingled, it progresses to step S71.

[0117] In step S64, when judged with the hold carbon button L having been pushed, a return is carried out.

[0118] In step S72, when judged with it not being the middle of the image reproduced at step S70 being a file, step S73 is skipped.

[0119] Drawing 18 is a flow chart explaining elimination edit processing of a video camera. A control section 34 makes it display it on screen right-hand side as "under elimination edit" in step

S81 while displaying a thumbnail A1 thru/or A9 in the center of LCD5, as shown in drawing 19 . Here, a user performs actuation (see step S41 of drawing 12 thru/or S44) of making the regeneration mentioned above starting, and same actuation. Make image information read from a magneto-optic disk 10, it is made to reproduce corresponding to actuation of a user, and a control section 34 displays an image on LCD5. At this time, a control section 34 controls LCD5, and as shown in drawing 23 , a user can usually judge whether it is that what capacity is secured (increased) by this which displays the remaining capacity of a magneto-optic disk 10, and the capacity of the part for elimination unlike the display at the time of playback (drawing 13 R> 3), if that of the part for elimination is eliminated. Moreover, a user can also judge that it is [elimination] under edit. About the part for elimination, it mentions later.

[0120] In step S82, a control section 34 judges whether the image currently reproduced is a playback termination location while judging whether the start stop button 8 was pushed. When judged with the image with which the start stop button 8 is not pushed and is reproduced not being a playback termination location, it progresses to step S83.

[0121] In step S83, a control section 34 judges whether LCD5 as which the dynamic image is displayed was touched in the viewing area of the dynamic image of the touch tablet 9 arranged in piles. When it judges that it was touched by the touch tablet 9 (the starting point of an elimination part or a terminal point was directed), it progresses to step S84.

[0122] In step S84, a control section 34 judges whether the image under playback is a color playback mode by LCD5. Here, a color playback mode is the mode which reproduces the image by which elimination assignment is not carried out, and a playback image is displayed on LCD5 in a color. When judged with LCD5 being a color playback mode (the image currently displayed not being the section for elimination), it progresses to step S85.

[0123] In step S85, a control section 34 is changed into monochrome playback mode from a color playback mode, and switches the playback image by LCD5 to a monotone display from color display. Here, monochrome playback mode is the mode which reproduces the image by which elimination assignment was carried out, and a playback image is displayed on LCD5 in a monotone.

[0124] In step S86, a control section 34 records the timing touched in the touch tablet 9 as a start point of an elimination part at step S83 on a scenario file (file for worksheets referred to when performing elimination).

[0125] In step S84, when judged with it being monochrome playback mode (the image currently displayed being the section for elimination), it progresses to step S87.

[0126] In step S87, a control section 34 changes LCD5 into color display from a monotone display.

[0127] In step S88, a control section 34 records 1-second before of the timing touched in the touch tablet 9 as a terminal point of an elimination part at step S83 on a scenario file (file for worksheets referred to when performing elimination). When a touch tablet 9 makes 1-second before of the touched timing the terminal point of an elimination part, it can prevent originating in the delay of actuation of a user and an elimination part becoming long beyond the need. Furthermore, a control section 34 detects the capacity of the part for elimination, and updates the display of the capacity of the part for elimination shown in drawing 23 .

[0128] In step S83, when it judges that it is not touched by the touch tablet 9, it returns to step S82.

[0129] In step S82, when judged with the image with which the start stop button 8 is pushed or reproduced being a playback termination location, it progresses to step S89.

[0130] The definite carbon button O operated in case a control section 34 directs elimination of ****** for elimination in step S89, as shown in drawing 20 Static test mode 1 carbon button P operated in case the part for elimination is skipped and it is made to reproduce The initial-screen carbon button R operated in case it returns to static test mode 2 carbon button Q operated in case the part for elimination is indicated by the monotone and color display of the part for unblanking is carried out, and an initial screen (drawing 5) is displayed on LCD5.

[0131] In step S90, a control section 34 judges whether it was touched in the definite carbon button O. When it judges that it was touched by the definite carbon button O, it progresses to step S91.

[0132] In step S91, a control section 34 judges whether it exists in the middle of the starting point of the part for elimination or a terminal point being a file. When judged with existing as the starting point of the part for elimination or a terminal point is a file, it progresses to step S92.

[0133] In step S92, processing is performed in the middle of the file containing the part for elimination.

[0134] Here, processing is explained the middle. As mentioned above, in the gestalt of this operation, image information is compressed using an MPEG method and stored in the file. as the image information of the frame of the predetermined number of sheets which follows a criteria frame on the basis of the image information of a criteria frame in MPEG compression -- difference with the image information of a criteria frame -- amount of information is made to compress by recording information Therefore, if the frame near [which is left behind (saved)] the head of the second half is using as the criteria frame the frame which exists in the first half of a file when dividing a file into two, in order to eliminate [for example,] the first half of a file bordering on the location (frame) of arbitration, it is necessary to record the information on a criteria frame in the second half of a file. This processing is processing the middle. The detail of processing is explained with reference to the flow chart of drawing 21 using the example shown in drawing 8 (B) the middle.

[0135] In step S101, a control section 34 extracts a series of scenes including the file which has a part for elimination with reference to a scenario file (it considers as a processing object). For example, since the part for elimination exists over the files [floor line / floor line and / 9] 7 in the case of the example shown in drawing 8 (B), a scene 3 is extracted.

[0136] In step S102, a control section 34 extracts the file in which the part for elimination exists. In the case of this example, a file floor line 7 is extracted.

[0137] In step S103, a control section 34 extracts the unblanking part of the file extracted at step S102. In the case of this example, file floor line7a is extracted.

[0138] In step S104, a control section 34 judges whether the unblanking part extracted at step S103 is the head of a file. Since file floor line7a is the head of a file in the case of this example, it progresses to step S105.

[0139] In step S105, a control section 34 copies file floor line7a extracted at step S103 to the BAHHA memory 26.

[0140] In step S106, a control section 34 performs termination processing (writing of EOF) of file floor line7a copied to the BAHHA memory 26.

[0141] A control section 34 controls the data-access section 27, and makes file floor line7a to which termination processing was performed record on a magneto-optic disk 10 in step S107, as shown in drawing 8 (C).

[0142] A control section 34 controls the data-access section 27, and makes file floor line7b enter in the "next file" of the header unit of file floor line7a in step S108.

[0143] In step S109, a control section 34 judges whether the unblanking section remains in the file extracted at step S102. Since the unblanking section does not remain in a file floor line 7, it progresses to step S110.

[0144] In step S110, a control section 34 judges whether the file in which the starting point of the unblanking section or a terminal point exists in a series of files extracted at step S101 remains. Since the file floor line 9 remains in the case of this example, it returns to step S102.

[0145] A file floor line 9 is extracted in step S102.

[0146] File floor line9b is extracted in step S103.

[0147] In step S104, it is judged with file floor line9b not being the head of a file, and progresses to step S112.

[0148] A control section 34 makes the file floor line 9 extracted at step S102 copy to buffer memory 26 in step S112.

[0149] In step S113, a control section 34 controls the data compression expanding section 25, and expands a file floor line 9.

[0150] In step S114, a control section 34 controls the data compression expanding section 25, extracts file floor line9b which is the unblanking section from a file floor line 9, and carries out MPEG compression.

[0151] A control section 34 makes file floor line9b by which controlled the data-access section 27 and MPEG compression was carried out record on a magneto-optic disk 10 in step S115.

[0152] A control section 34 controls the data-access section 27, makes file floor line9a enter in "the pre- file" of the header unit of file floor line9b, and makes a file floor line 10 enter in "the next file" in step S108.

[0153] In step S109, since the unblanking section does not remain in a file floor line 9, it progresses to step S110.

[0154] In step S110, since the file in which the starting point of the unblanking section or a terminal point exists in a series of files extracted at step S101 does not remain, it progresses to step S111.

[0155] In step S111, it is judged whether a series of scenes including a file with the part for elimination exist. Since such a file does not exist in the case of this example, a return is carried out.

[0156] It returns to drawing 18 . A control section 34 controls the data-access section 27, and makes the part for elimination (in the case of the example of drawing 8 (B) the file floor line 7 b, floor line8, and floor line9a) eliminate in step S93 (it is made to store in an elimination directory).

[0157] In step S91, when judged with not existing as the starting point of the part for elimination or a terminal point is a file, step S92 is skipped.

[0158] In step S90, when it judges that it is not touched by the definite carbon button O, it progresses to step S94.

[0159] In step S94, a control section 34 judges whether it was touched in the static test mode 1 carbon button P. When it judges that it was touched by the static test mode 1 carbon button P, it progresses to step S95.

[0160] In step S95, a control section 34 skips the part for elimination of the scenes directed at step S81, makes it reproduce, and is displayed on LCD5.

[0161] In step S94, when it judges that it is not touched by the static test mode 1 carbon button P, it progresses to step S96.

[0162] In step S96, a control section 34 judges whether it was touched in the static test mode 2 carbon button Q. When it judges that it was touched by the static test mode 2 carbon button Q, it progresses to step S97.

[0163] In step S97, a control section 34 reproduces in a monotone the part for elimination of the scenes directed at step S81, reproduces an unblanking part in a color, and is displayed on LCD5.

[0164] In step S96, when it judges that it is not touched by the static test mode 2 carbon button Q, it progresses to step S98.

[0165] In step S98, a control section 34 judges whether it was touched in the initial-screen carbon button R. When judged with step S90 having been touched in return and the initial-screen carbon button R when it judged that it is not touched by the initial-screen carbon button R, an initial screen (drawing 8 (A)) is displayed on LCD5.

[0166] As mentioned above, when the first half of File floor line as shown in drawing 8 R> 8 (D) by elimination edit processing is a part for elimination (a is the terminal point of the part for elimination), When drawing 8 (D) and drawing 8 (E) when the second half of File floor line as shown in drawing 8 (E) is a part for elimination (b is the starting point of the part for elimination), as shown in a list at drawing 8 (F) and drawing 8 (G) are combined with arbitration, it is possible to eliminate the part of arbitration.

[0167] It returns to drawing 4 . In step S7, a control section 34 judges whether it was touched in the off-carbon button D. When it judges that it was touched by the off-carbon button D, it progresses to step S8.

[0168] In step S8, a control section 34 makes the drive power source of a video camera off. However, the standby power source for detecting the actuation to the power reset button 12 is in the condition of ON.

[0169] In step S7, when it judges that it is not touched by the off-carbon button D, it progresses to step S9.

[0170] In step S9, a control section 34 judges whether predetermined time amount passed, after an initial screen is displayed by step S4. When judged with predetermined time amount having passed, it progresses to step S8, and when judged with predetermined time amount having not passed, it returns to step S5.

[0171] Drawing 21 shows the example of the remaining capacity time amount for which a fuzzy remaining capacity time function is asked in processing at the time of the timetable of drawing 10 which can be recorded on videotape. Any of the real display min explained below, real display max, or a real display average are sufficient as the remaining capacity time amount displayed in step S34 of drawing 10 .

[0172] The elapsed time after an image transcription is started is displayed on the elapsed time of drawing 21 . The residual time at the time of assuming that storage capacity consumption is maximum per unit time amount which can be recorded on videotape is displayed on the assumption Min remaining time. The residual time at the time of assuming that storage capacity consumption is the minimum value per unit time amount which can be recorded on videotape is displayed on the assumption Max remaining time. The remaining capacity actually measured on the basis of elapsed time 0 minute is displayed on real remaining capacity. The residual time at the time of assuming that storage capacity consumption is maximum per [corresponding to real consumption remaining capacity] unit time amount which can be recorded on videotape is displayed on real display min. In addition, for example, calculated value is 8.6 and 8.6->9 shows that 9 which is the rounded-off value is displayed. The residual time at the time of assuming that storage capacity consumption is the minimum value per [corresponding to real consumption remaining capacity] unit time amount which can be recorded on videotape is displayed on real display max. The average real display minimum and the real display greatest in a real display average is displayed.

[0173] In addition, the computer program which makes a control section 34 perform processing mentioned above is memorized by the storage section 37. Moreover, this computer program may be made to be supplied to a user, after the magneto-optic disk 10 has memorized beforehand.

[0174] Furthermore, in the gestalt of this operation, although the magneto-optic disk 10 was used as a record medium which records the compressed image information, other information record media (for example, DVD etc.) in which random access is possible may be used.

[0175]

[Effect of the Invention] As mentioned above, since according to the dynamic-image record camera according to claim 1 it will be switched to a playback mode if an electric power supply is started, operability can be raised.

[0176] According to the dynamic-image regenerative apparatus according to claim 2, by actuation of making playback of a dynamic image suspending, since inhibition changes from a dynamic-image playback mode to an image playback mode in an instant, operability can be raised. Since the time amount which can record a record means is compared with the time amount in which the electric power supply of an electric power supply means is possible and the method of presentation was changed into the hour entry corresponding to the comparison result, the information between suitable can be displayed to a user.

[0177] According to a dynamic-image regenerative apparatus according to claim 3 and the dynamic-image regenerative apparatus according to claim 4, since the actuation part in a dynamic-image playback mode and the actuation part in a static-image playback mode were made the same, operability can be raised.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the perspective view showing the configuration of the video camera which applied this invention.

[Drawing 2] It is the perspective view showing the configuration at the time of seeing from the tooth back of the video camera of drawing 1 .

[Drawing 3] It is the block diagram showing the electric configuration inside the video camera of drawing 1 .

[Drawing 4] It is a flow chart explaining starting processing of the video camera of drawing 1 .

[Drawing 5] It is drawing explaining the image displayed on LCD5 of drawing 2 .

[Drawing 6] It is a flow chart explaining image transcription processing of the video camera of drawing 1 .

[Drawing 7] It is drawing explaining the image displayed on LCD5 of drawing 2 .

[Drawing 8] It is drawing explaining the file on which information is recorded.

[Drawing 9] It is drawing explaining the file on which information is recorded.

[Drawing 10] It is a flow chart explaining the time amount display process of the video camera of drawing 1 which can be recorded on videotape.

[Drawing 11] It is drawing explaining the image displayed on LCD5 of drawing 2 .

[Drawing 12] It is a flow chart explaining regeneration of the video camera of drawing 1 .

[Drawing 13] It is drawing explaining the image displayed on LCD5 of drawing 2 .

[Drawing 14] It is drawing explaining the image displayed on LCD5 of drawing 2 .

[Drawing 15] It is a flow chart explaining the playback post process of the video camera of drawing 1 .

[Drawing 16] It is drawing explaining the image displayed on LCD5 of drawing 2 .

[Drawing 17] It is drawing explaining the image displayed on LCD5 of drawing 2 .

[Drawing 18] It is a flow chart explaining elimination edit processing of the video camera of drawing 1 .

[Drawing 19] It is drawing explaining the image displayed on LCD5 of drawing 2 .

[Drawing 20] It is drawing explaining the image displayed on LCD5 of drawing 2 .

[Drawing 21] It is the flow chart which explains processing processing in the middle of the video camera of drawing 1 .

[Drawing 22] It is drawing having shown the example of the remaining capacity time amount displayed at step S34 of drawing 10 .

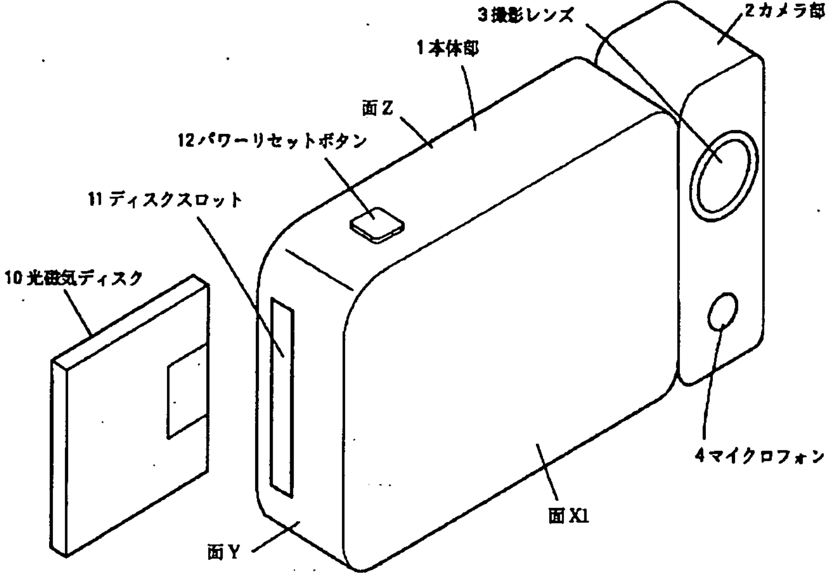
[Drawing 23] It is drawing explaining the image displayed on LCD5 of drawing 2 .

[Description of Notations]

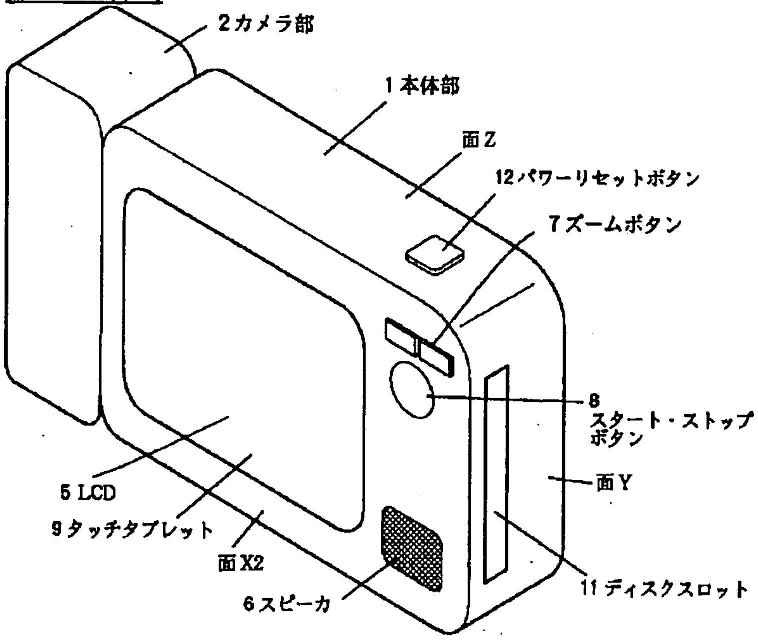
1 Body Section
2 Camera Section
3 Taking Lens
4 Microphone
5 LCD
6 Loudspeaker
7 Zoom Carbon Button
8 Start Stop Button
9 Touch Tablet
10 Magneto-optic Disk
11 Disk Slot
12 Power Reset Button
20 Lens Mechanical Component
21 Image Sensor
22 A/D Converter
23 Signal-Processing Section
24 Frame Memory
25 Data Compression Expanding Section
26 Buffer Memory
27 Data-Access Section
28 Wearing Judging Section
29 Voice-Input/output Section
30 D/A Transducer
31 A/D-Conversion Section
32 Sound Signal Processing Section
33 Display Image Creation Section
34 Control Section
35 Touch Input Section
36 Operating Member Input Section
37 Storage Section
38 Dc-battery

DRAWINGS

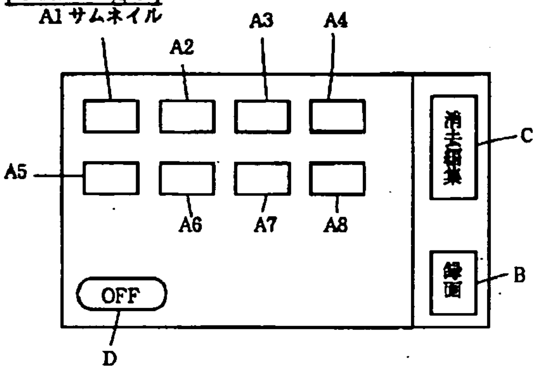
[Drawing 1]


3撮影レンズ
2カメラ部
1本体部
面Z
12パワーリセットボタン
11ディスクスロット
10光磁気ディスク
4マイクロフォン
面X1
面Y

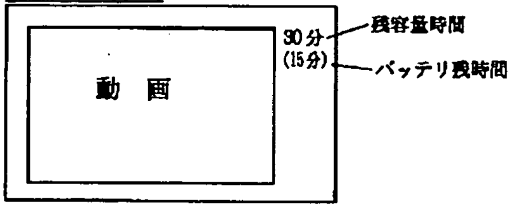
[Drawing 2]


2カメラ部
1本体部
面Z
12パワーリセットボタン
7ズームボタン
8 スタート・ストップボタン
面Y
5 LCD
9タッチタブレット
面X2
6スピーカ
11ディスクスロット

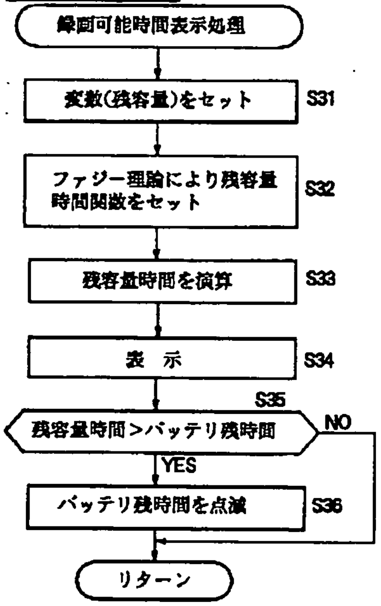
[Drawing 5]


A1 サムネイル
A2
A3
A4
A5
A6
A7
A8
消去編集
C
録画
B
OFF
D

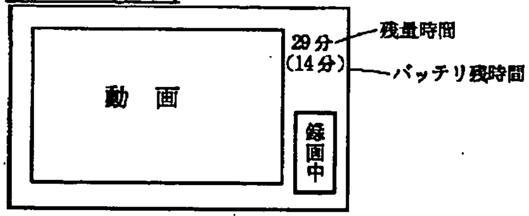
[Drawing 7]


動 画
30分
(15分)
残容量時間
バッテリ残時間

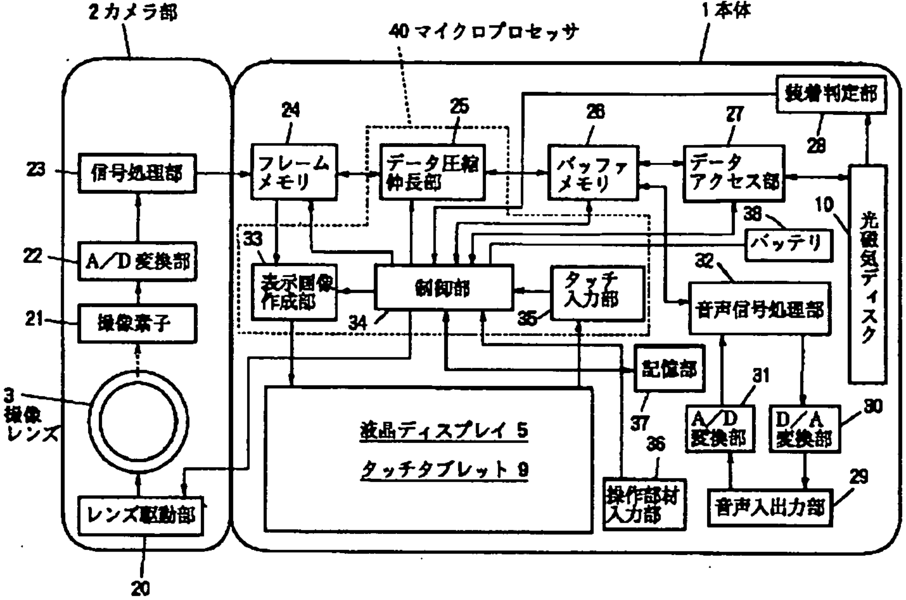
[Drawing 10]


録画可能時間表示処理
変数(残容量)をセット
S31
ファジー理論により残容量時間関数をセット
S32
残容量時間を演算
S33
表 示
S34
S35
残容量時間>バッテリ残時間
NO
YES
バッテリ残時間を点滅
S36
リターン

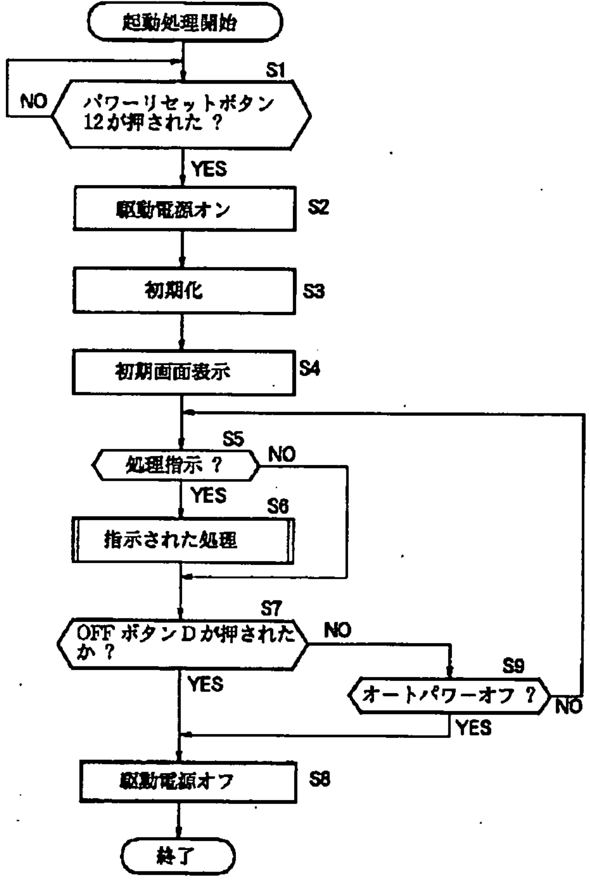
[Drawing 11]


動 画
29分
(14分)
残量時間
バッテリ残時間
録画中

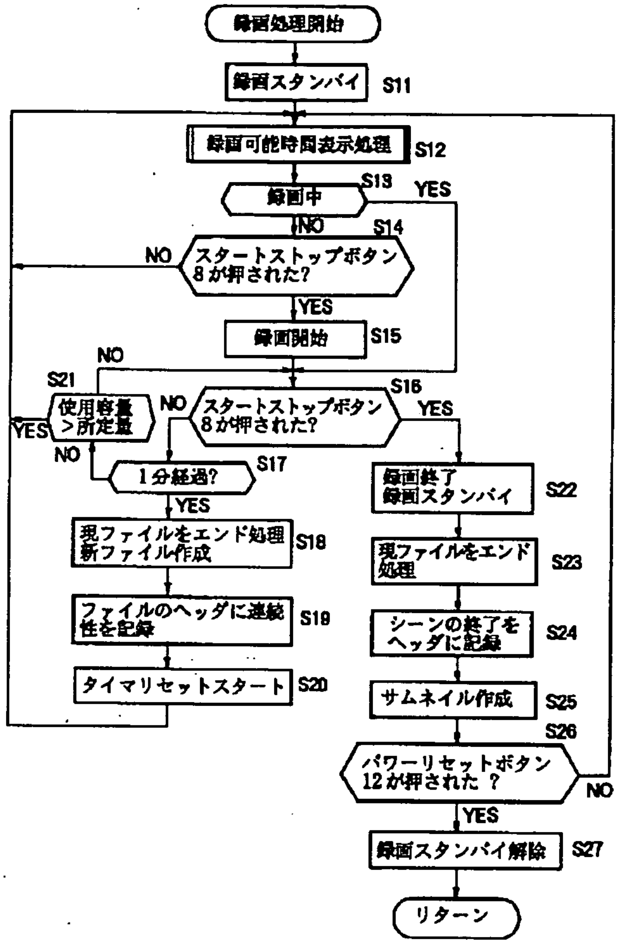
[Drawing 3]


2カメラ部
40マイクロプロセッサ
1本体
装着判定部
28
24
25
26
27
23
信号処理部
フレームメモリ
データ圧縮伸長部
バッファメモリ
データアクセス部
10
光磁気ディスク
38
バッテリ
22
A/D変換部
33
表示画像作成部
制御部
タッチ入力部
32
音声信号処理部
21
撮像素子
34
35
記憶部
31
3
撮像レンズ
37
A/D変換部
D/A変換部
30
液晶ディスプレイ 5
タッチタブレット 9
36
操作部材入力部
29
音声入出力部
レンズ駆動部
20

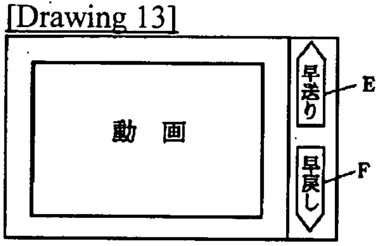
[Drawing 4]


起動処理開始
S1
NO
パワーリセットボタン12が押された？
YES
駆動電源オン
S2
初期化
S3
初期画面表示
S4
S5
処理指示？
NO
YES
S6
指示された処理
S7
OFF ボタンDが押されたか？
NO
YES
S9
オートパワーオフ？
NO
YES
駆動電源オフ
S8
終了

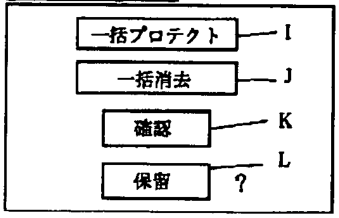
[Drawing 6]


録画処理開始
録画スタンバイ
S11
録画可能時間表示処理
S12
録画中
S13
YES
NO
スタートストップボタン8が押された?
S14
NO
YES
録画開始
S15
NO
S21
使用容量>所定量
YES
NO
スタートストップボタン8が押された?
S16
NO
YES
1分経過?
S17
YES
現ファイルをエンド処理 新ファイル作成
S18
ファイルのヘッダに連続性を記録
S19
タイマリセットスタート
S20
録画終了 録画スタンバイ
S22
現ファイルをエンド処理
S23
シーンの終了をヘッダに記録
S24
サムネイル作成
S25
S26
パワーリセットボタン12が押された ?
NO
YES
録画スタンバイ解除
S27
リターン

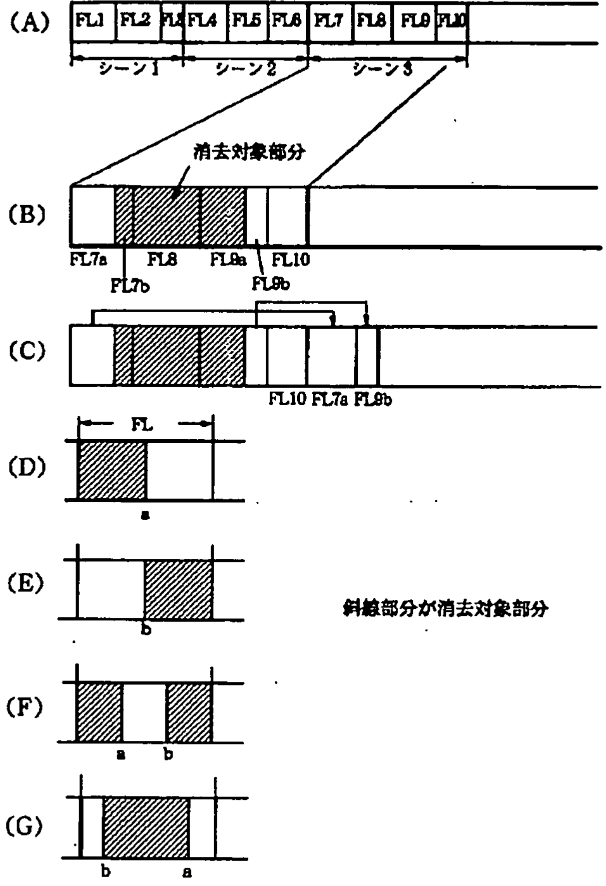
[Drawing 13]


動画
早送り
E
早戻し
F

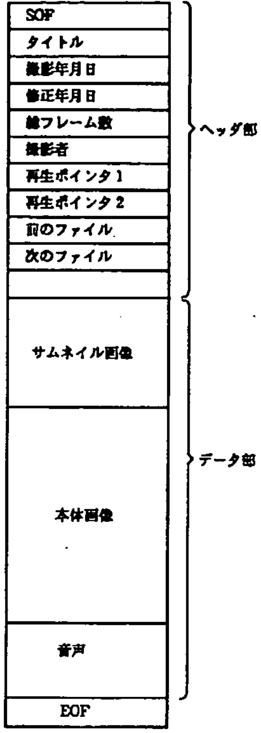
[Drawing 16]


一括プロテクト
I
一括消去
J
確認
K
保留
L
?

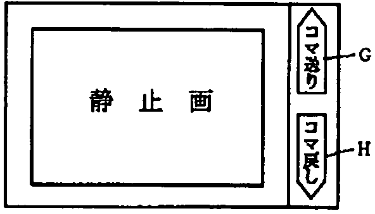
[Drawing 8]


(A)
FL1
FL2
FL4
FL5
FL6
FL7
FL8
FL9
FL10
シーン1
シーン2
シーン3
消去対象部分
(B)
FL7a
FL8
FL9a
FL10
FL7b
FL9b
(C)
FL10 FL7a FL9b
(D)
FL
a
(E)
b
斜線部分が消去対象部分
(F)
a
b
(G)
b
a

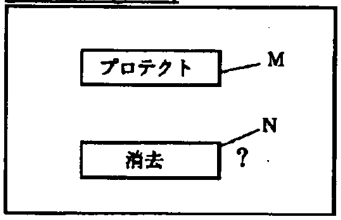
[Drawing 9]


SOF
タイトル
撮影年月日
修正年月日
総フレーム数
撮影者
再生ポインタ1
再生ポインタ2
前のファイル
次のファイル
ヘッダ部
サムネイル画像
データ部
本体画像
音声
EOF

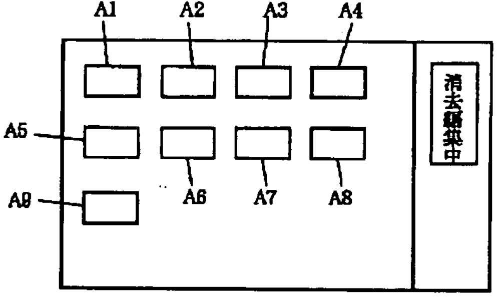
[Drawing 14]


静止画
コマ送り
G
コマ戻し
H

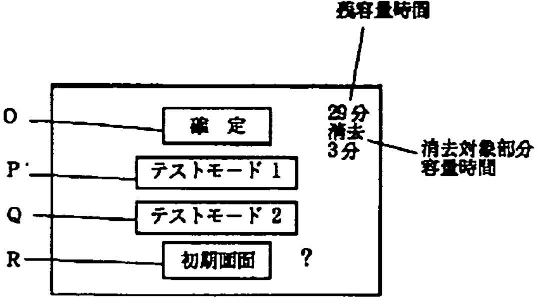
[Drawing 17]



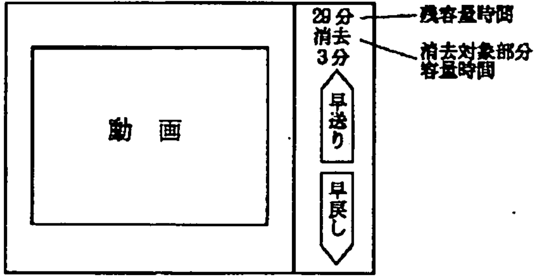
[Drawing 19]


A1
A2
A3
A4
A5
A6
A7
A8
A9
消去編集中

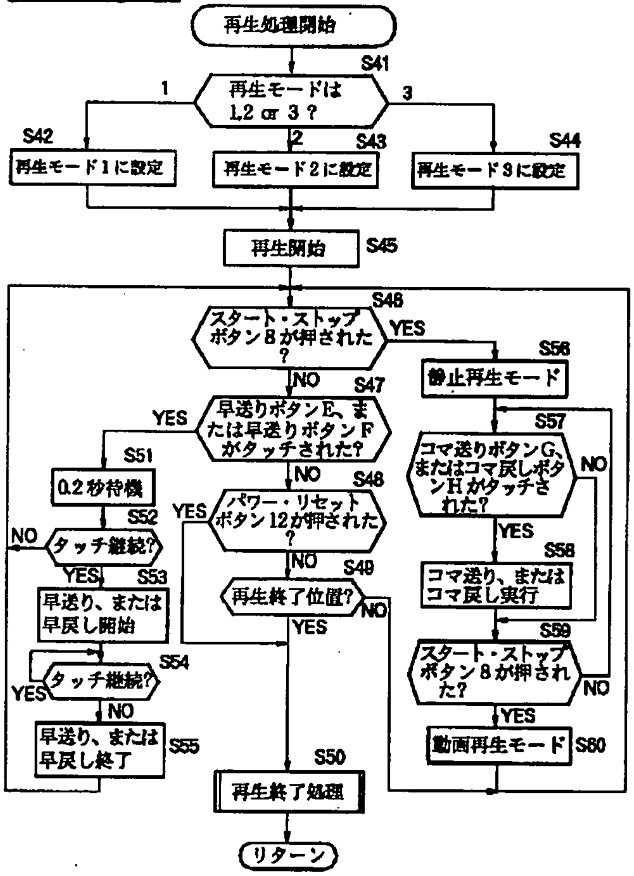
[Drawing 20]


残容量時間
O
P
Q
R
確　定
テストモード 1
テストモード 2
初期画面
?
29分
消去
3分
消去対象部分
容量時間

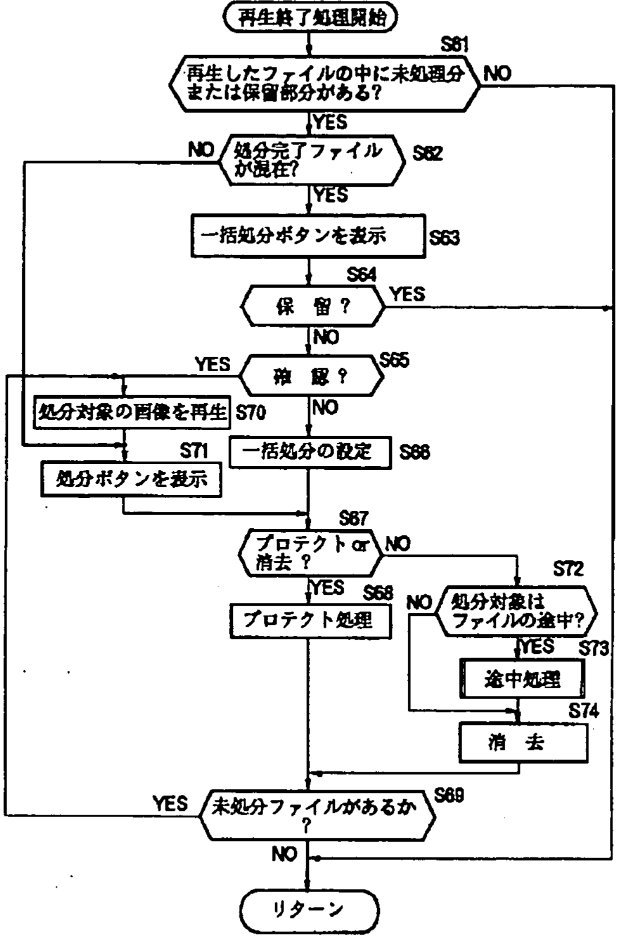
[Drawing 23]


動　画
29分
消去
3分
残容量時間
消去対象部分
容量時間
早送り
早戻し

[Drawing 12]


再生処理開始
S41
再生モードは
1,2 or 3 ?
1
2
3
S42
再生モード1に設定
S43
再生モード2に設定
S44
再生モード3に設定
S45
再生開始
S46
スタート・ストップボタン8が押された?
YES
NO
S56
静止再生モード
S47
早送りボタンE、または早送りボタンFがタッチされた?
YES
NO
S51
0.2秒待機
S52
タッチ継続?
NO
YES
S53
早送り、または早戻し開始
S54
タッチ継続?
YES
NO
S55
早送り、または早戻し終了
S48
パワー・リセットボタン12が押された?
YES
NO
S49
再生終了位置?
NO
YES
S50
再生終了処理
リターン
S57
コマ送りボタンG、またはコマ戻しボタンHがタッチされた?
NO
YES
S58
コマ送り、またはコマ戻し実行
S59
スタート・ストップボタン8が押された?
NO
YES
S60
動画再生モード

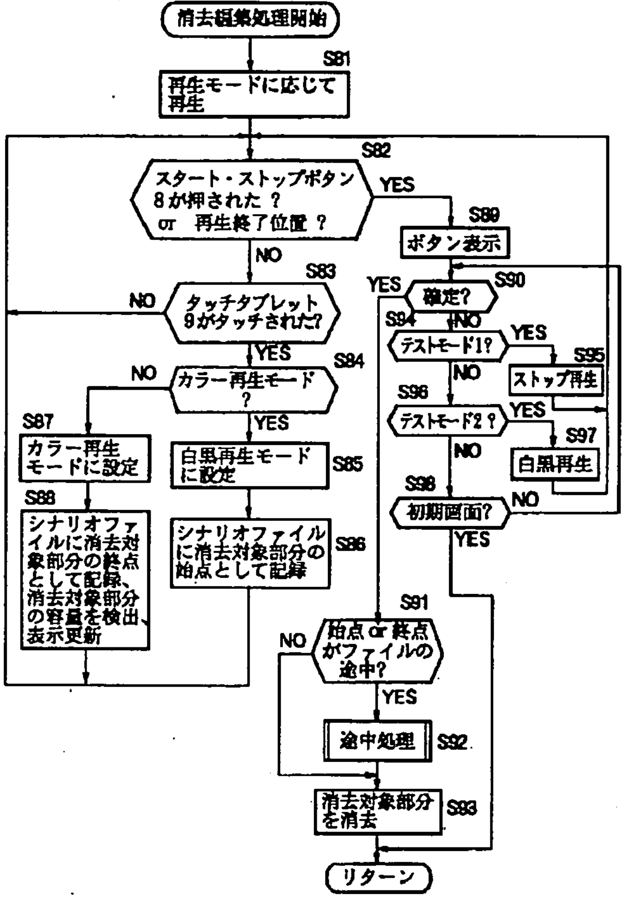
[Drawing 15]


再生終了処理開始
S61
再生したファイルの中に未処理分または保留部分がある?
NO
YES
S62
処分完了ファイルが混在?
NO
YES
S63
一括処分ボタンを表示
S64
保留?
YES
NO
S65
確認?
YES
NO
S70
処分対象の画像を再生
S71
処分ボタンを表示
S66
一括処分の設定
S67
プロテクト or 消去?
NO
YES
S68
プロテクト処理
S72
処分対象はファイルの途中?
NO
YES
S73
途中処理
S74
消去
S69
未処分ファイルがあるか?
YES
NO
リターン

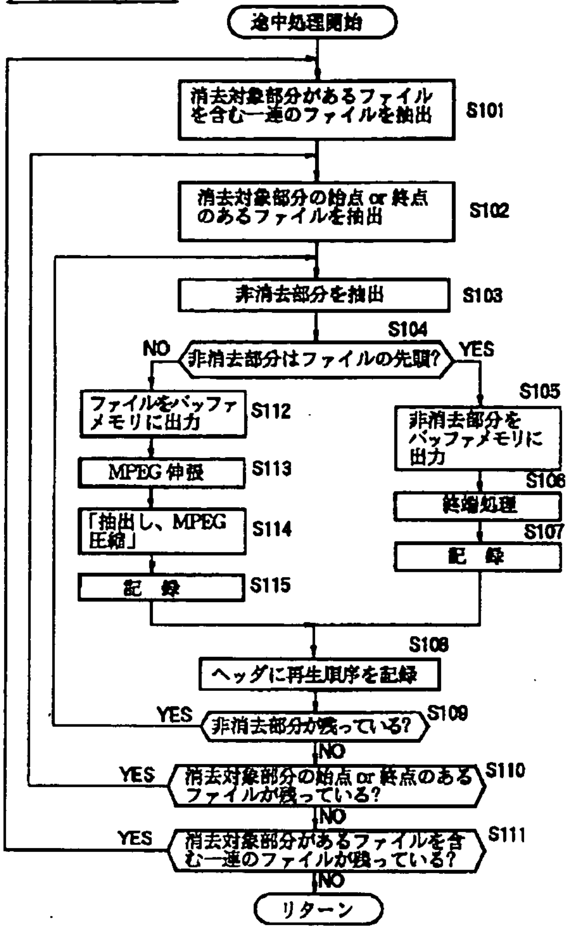
[Drawing 22]

	経過時間（分）	想定 Min 残時間（分）	想定 Max 残時間（分）	実消費残容量（%）	実表示最小（分）	実表示最大（分）	実表示平均（分）
初期値→	0	10	20	100	10	20	15
	1	9	19	90	9	18	13.5→14
	2	8	18	85	8.5→9	17.2→17	12.9→13
	3	7	17	80	8	16	12
	4	6	16	75	7.5→8	15	11.25→11
	5	5	15	65	6.5→7	13	9.75→10
	6	4	14	58	5.8→6	11.6→12	8.7→9
	7	3	13	50	5	10	7.5→8
	8	2	12	40	4	8	6
	9	1	11	35	3.5→4	7	5.25→5
	10	0	10	32	3.2→3	6.4→6	4.8→5
	11		9	25	2.5→3	5	3.75→4
	12		8	15	1.5→2	3	2.25→2
	13		7	10	1	2	1.5→2
	14		6	2	0.2→0	0.4→0	0.3→0
	15		5	0	0	0	0
	16		4				
	17		3				
	18		2				
	19		1				
	20		0				

[Drawing 18]


消去編集処理開始
S81
再生モードに応じて再生
S82
スタート・ストップボタン8が押された？
or 再生終了位置？
YES
NO
S89
ボタン表示
S83
タッチタブレット9がタッチされた?
NO
YES
S84
カラー再生モード？
NO
YES
S87
カラー再生モードに設定
S88
シナリオファイルに消去対象部分の終点として記録、消去対象部分の容量を検出、表示更新
S85
白黒再生モードに設定
S86
シナリオファイルに消去対象部分の始点として記録
S90
確定?
YES
NO
S94
テストモード1?
YES
S95
ストップ再生
NO
S96
テストモード2？
YES
S97
白黒再生
NO
S98
初期画面?
NO
YES
S91
始点 or 終点がファイルの途中?
NO
YES
途中処理
S92
消去対象部分を消去
S93
リターン

[Drawing 21]


途中処理開始
消去対象部分があるファイルを含む一連のファイルを抽出
S101
消去対象部分の始点 or 終点のあるファイルを抽出
S102
非消去部分を抽出
S103
S104
NO
非消去部分はファイルの先頭?
YES
S105
ファイルをバッファメモリに出力
S112
非消去部分をバッファメモリに出力
MPEG伸張
S113
S106
終端処理
「抽出し、MPEG圧縮」
S114
S107
記　録
記　録
S115
S108
ヘッダに再生順序を記録
YES
非消去部分が残っている?
S109
NO
YES
消去対象部分の始点 or 終点のあるファイルが残っている?
S110
NO
YES
消去対象部分があるファイルを含む一連のファイルが残っている?
S111
NO
リターン